

W5YI

America's Oldest Ham Radio Newsletter **REPORT**

Up to the minute news from the world of amateur radio, personal computing and emerging electronics. While no guarantee is made, information is from sources we believe to be reliable.

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Reconsideration Urged on New 2-Meter CB Radio Service!

"...the FCC's decision as constructed will alter the fundamental purpose of these frequencies in a manner detrimental to business and industrial users that was not contemplated...." *From Motorola Petition for Reconsideration*

As Part of the FCC's 1998 *Biennial Regulatory Review*, on October 13, 2000 the FCC reallocated five low power VHF frequencies from the Part 90 Private Land Mobile Radio (PLMR, business band) to a newly-created Part 95 general use Multi-Use Radio Service (MURS.)

Instead of business-related communications, these frequencies (154.570, 154.600, 151.820, 151.880 and 151.940 MHz) may be used for any personal or business purpose. Previously, use of these frequencies required coordination and licensing.

MURS is a five-channel, 2-watt service in the VHF 150 MHz band, which does not require a special license, despite its high power and long range of up to 5 miles. Like 27 MHz CB, MURS is licensed by rule. That is, individual licenses are not needed. It is somewhat similar to the UHF (462-468 MHz) Family Radio Service (FRS) which has 14 channels in the 70-cm band. FRS' maximum power level is only one-half watt. MURS four times more powerful.

MURS is defined as a "...private, two-way, short distance voice, data or image communications service for personal or business activities of the general public." The regulations further provide that the MURS channels "...are available on a shared basis only and will not be assigned for the exclusive

use of any entity." The new rules went into effect on Nov. 13.

Basically, MURS offers Amateur Radio-like communications without the need for a license. Creation of the MURS has not yet received wide publicity, but this new personal radio service has the potential to become very popular. MURS offers certain capabilities not readily available from any other unlicensed personal and family communications service.

For instance, vehicle-to-vehicle range, even with a 2 Watt ERP limitation, will be substantially better with MURS than with FRS, especially because it is permissible to use external vehicle antennas.

The key selling points of MURS is the higher power, increased range without the need for a license and that the service is less subject to interference than FRS. Its key drawback is that it has only five channels, but the FCC said it would consider adding more channels if the service proved popular. The new service could be useful for unlicensed individuals wishing to work in conjunction with radioamateurs performing public service communications.

Many manufacturers are concerned that MURS will have an adverse impact on the sale of FRS radios of which Motorola is a major player. Several FRS suppliers raced to prepare new MURS

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products for display at the recently concluded Consumer Electronic Show in Las Vegas.

Reportedly Audiovox, Maxon, Kenwood, Unwired and Midland all are jumping on the MURS bandwagon, some armed with plans to show new products at CES. Also, RadioShack will offer a unit, at a time to be announced. Kenwood expects the service to "take off" once manufacturers come out with some small, compact, low-priced units, just like FRS. Retail prices should be in the \$100 bracket.

Reconsideration requested

Several parties have already filed *Petitions for Reconsideration* of the rules for this new radio service. Two of particular importance were those filed by Motorola, Inc., and the Personal Radio Steering Group Inc. (PRSG).

The FCC requires that these petitions be filed within 30 days of publication of the *Report and Order* in the *Federal Register*. The FR published the MURS R&O on October 13, 2000.

In its Nov. 13th request for reconsideration, Motorola (the heaviest of the industry "heavy weights") said that while it generally supports the elimination of licensing requirements for the five low power frequencies, it opposes the use of these channels for anything but industrial and business use.

In its formal comments to the *Notice of Proposed Rulemaking*, Motorola recommended that the frequencies be placed in a new unlicensed radio service category, called the "Low Power Industrial/Business Radio Service" that "will be designated for business users only and clearly distinguishes itself from the Family Radio Service and Low Power Radio Service frequencies in the Citizens Band Radio Service."

Motorola is also concerned that "If the frequencies are placed in the general use MURS category, manufacturers will likely develop radio applications that will be marketed to a broader consumer population," Motorola said, adding "The expanded availability of the frequencies to general consumers will increase traffic congestion and interference, thereby harming business users."

Motorola also points out that the Part 90 (business band) rules prohibits interconnection (phone patching) to the Public Switched Telephone Network (PSTN) without appropriate licensing. There is no such restriction for MURS "...which could lead to new and unintentional uses of the channels, to the detriment of existing users."

For example, Motorola anticipates the development of a two-watt cordless telephone that provides service - and interference - for miles from its intended base. There are no MURS restrictions on the use of external antennas nor on antenna height.

The Motorola Petition requests that the FCC set aside these new rules altogether, and return these fre-

quencies to the Business Radio Service. Motorola argues that these new rules would result in devastating and irreparable harm to the current users (which the FCC says actually already includes both business and personal users) of these channels.

It wants a prohibition on telephone interconnection "...and, perhaps a prohibition against integrating MURS and MURS frequencies into a single radio unit." That would preclude a dual-band 2 meter/70 cm CB (MURS/-FRS) handheld radio from being marketed.

Motorola believes it will be difficult to craft rules that apply only to business and industrial users. "If this proves to be the case, the Commission should reinstate the licensing requirements for these frequencies and return the frequencies to the Part 90 PLMR Services," it said.

If the FCC were to take the action requested by Motorola (and we expect further intensive lobbying pressure from Motorola), MURS would simply be canceled, obliterated, gone.

Personal Radio Steering Group

The Personal Radio Steering Group, Inc. is an all-volunteer, not-for-profit Michigan corporation established by GMRS licensees. Although it supports MURS, PRSG takes issue with some of its specifications and also filed a *Petition for Reconsideration*.

In the PRSG Petition, coordinator Corwin D. Moore, Jr. WB8UPM (Ann Arbor, Michigan) requests certain additional rule changes that would help retain much of the current nature of use of these frequencies.

Their position is that "it is the nature of the usage of these frequencies, not the nature of the users," that is the critical factor in this reconsideration. "Besides, these frequencies already have personal users on them, due to long-standing marketing practices that are directed specifically at non-business use," Moore said.

PRSG points out that the FCC proposed changes only to the licensing requirement. It did not suggest any changes in transmitter power or connection to the public telephone system. The Order "...adopts a transmitter power limit based solely on ERP (effective radiated power).

"This is a concept that is difficult for the typical citizen to understand or calculate, and is nearly impossible to measure directly," Moore said. PRSG mentions that a typical "rubber duckie" antenna has a net loss in efficiency of perhaps 3 dB to 10 dB

"Because of this confusion and imprecision, the operator of a MURS station could reasonably question if it is permissible to use a radio with a transmitter rated at four-watts of output power" since the ERP would be less than 2 watts. Furthermore, connection to a high gain antenna would greatly exceed the 2-watt ERP limit making even a

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2-watt radio illegal to use. For this reason, PRSG wants the FCC to replace the 2-watt ERP limitation with a maximum transmitter output power of 2 watts.

PRSG also wants the rules to be reconfigured to fulfill mobile communications needs as formerly authorized under Part 90 rules. Under the new rules "...the likely effect will be expanding the use of these frequencies to include base-station-to-base-station use of a recreational nature."

The rules should also limit antenna height, prohibit "repeater-like functions" and phone patching. PRSG also suggests that MURS be renamed to the "Mobile Use Radio Service."

"If the FCC were adopt our more modest changes (but leave the MURS service otherwise intact), personal use of these MURS frequencies will continue to increase. Our requested changes go more to technical issues that would not cause any significant disruption to plans for this new service, but that would retain its current mobile-use orientation, PRSG said.

PHASE 3D HAMSAT SAFELY IN ORBIT!

On November 15th the Paris-based European Space Agency lofted four satellites into orbit from a single space shot. The launch took place from "Arianespace's" Kourou, French Guiana spaceport on the northeast coast of South America.

The new generation Ariane 5 heavy-lift vehicle set a record with a textbook launch by placing nearly 7 tons (6,313 kg.) into orbit. Ariane 5 rocket is the world's only commercial launcher in service today capable of boosting payloads weighing more than 6 tons into geostationary transfer orbit. The rocket is designed to launch the heaviest commercial satellites currently built as well as transporting units of the International Space Station.

The last of the four birds to be released from Flight 135 was the long awaited AMSAT Phase 3-D Amateur Radio satellite. The other three satellites were the primary payload (the 5 ton) PanAmSat communications satellite and two auxiliary British military research and technology microsattellites.

Since the beginning of the year, Arianespace has a spotless record: 10 out of 10 successful flights. Still ham satellite enthusiasts everywhere were holding their breath during the final countdown since P-3D was not insured. Many remembered that Ariane-5's career started off with a spectacular failure during its maiden test launch in June 1996, exploding 37 seconds after liftoff ...sending four satellites worth \$500 million into the sea.

After being postponed one day due to a telemetry glitch with PanAmSat, Flight 135 blasted off at 8:07 p.m. EST, 10:07 p.m. Kourou time (and 1:07 a.m. GMT Nov. 16.) The launch, webcasted around the world on the Internet, lit up a partly cloudy equatorial night sky and was

visible from the ground for over three minutes. When the "telecast" concluded, P3D was well on its way to its final orbit... and well on its way to becoming the fraternity's latest satellite, OSCAR-40.

AMSAT Phase 3D

The Phase 3D Amateur radio satellite was built by radioamateurs from around the world with AMSAT Deutschland (Germany) being the lead developer.

Carrying a payload of various HF, V, U, L, S, C, X and K-band transmitters and receivers, it weighed nearly 1,400 pounds (630 kg.) at liftoff. Forty-one minutes later, Phase 3D separated from the rocket. It is, by far, the largest amateur radio satellite ever built. The launch culminates years of planning, design and construction as well as an ambitious fundraising campaign.

Most of Phase 3-D's mass at launch is actually propellant - three different chemicals - monomethyl hydrazine fuel, nitrogen tetroxide oxidizer, and anhydrous ammonia for the arcjet engine. Phase 3-D's final orbit is highly inclined to the equator, so it must use its onboard propellant to change its orbit from the Ariane rocket's geostationary transfer orbit in to Phase 3-D's final orbit.

After Phase 3-D reaches its operational orbit there will be major improvements. It will be some 20 feet across when its solar panels are deployed, increasing power generation from 200 watts up to 600 watts. The satellite will also be "despun" with the high gain directional antennas aimed directly towards the Earth.

Due to its final "looping" footprint which repeats every 48 hours, its coverage zone will include primarily North America, the Far East, and Europe. P-3D should be operational for 10 years, perhaps more. The cost to the ham radio community was put at nearly \$4 million!

As soon as Phase 3D was flying on its own, AMSAT released the following special bulletin.

ANS Bulletin 320 from AMSAT HQ, Silver Spring, MD. Nov. 15.
TO: All Radio Amateurs

A new era in Amateur Radio communications was ushered in on November 16, 2000 (UTC) as AMSAT-DL Executive Vice President and P3D Mission Director Peter Guelzow, DB2OS, informed AMSAT News Service that the launch of the Phase 3D satellite from the European Spaceport in Kourou, French Guiana was successful --following a spectacular night-time launch.

"It was a textbook launch" said DB2OS, "from the first minute of flight, until P3D separated from the Ariane 5 launch vehicle, all received telemetry indicates the launch went perfectly and our satellite appears to be in very good health"

Launched with three other satellites, Phase 3D was placed into geostationary transfer orbit, from where it will be nudged into its final elliptical orbit.

The Ariane 5 flight proved to be a record setting mission as it marked the first use of the ASAP-5 platform. The ASAP-5

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enables the launcher to carry auxiliary micro and mini satellite payloads. By coincidence, P3D was married to the PamAm 1R satellite, which was also the case when the first Ariane 4 (flight 401) rocket also launched both an AMSAT and a PanAm satellite. On this launch, PAS-1R becomes the largest commercial satellite ever put into orbit -- and P3D the largest Amateur Radio satellite ever built and launched.

AMSAT-NA President Robin Haighton, VE3FRH, welcomed the news of the launch, noting "...that the design, building and financing of P3D by international volunteers is a great achievement."

Immediate AMSAT-NA past President Keith Baker, KB1SF, told ANS that he was "delighted" by the news of the Phase 3D launch. "Obviously this is a big thrill for all of us who have spent the better part of our lives over the past ten years bringing the satellite to fruition. I have no doubt that today will be regarded as one of the greatest days in the history of Amateur Radio."

ANS also received word from AMSAT-NA Board of Directors Chairman (and past AMSAT-NA President) Bill Tynan, W3XO. "I can't begin to tell you how happy I am to see P3D in orbit," said Tynan, "as I followed the launch sequence, I thought of the many people who have been involved with this project from the very beginning and how pleased everyone must be to see the reward of such hard work."

Although safely in orbit, there is much work to be done with Phase 3D before the satellite is opened for general Amateur Radio use. Initial housekeeping tasks are now underway to verify the health of the many complex systems onboard -- followed by bringing these systems online. As previously noted P3D is now in a transfer orbit used for geosynchronous satellites.

To move P3D from this orbit the Arcjet motor will burn intermittently (at perigee) over a 270-day period, with final inclination and apogee adjustments made by the spacecraft's 400 Newton motor. "When these maneuvers are completed and three-axis stabilization is achieved, the satellite solar panels will then be spread out to receive full sunlight," said Haighton. "It is anticipated that at this time the satellite will be fully operational for use by Amateur Radio operators around the world."

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ANS has received many inquiries from satellite operators

around the world asking if P3D will be available for general communications in the near future. Although this is certainly a possibility, it is important to note that the P3D team is very closely monitoring the power budget of this new satellite, both in available battery voltage and current orbital parameters. These two areas will be among the most important factors that determine what happens with P3D in the near future.

The P3D command team has reported to ANS that after the initial establishment of communication following launch, a number of systems have been checked out and found to be working perfectly. The attitude control system was calibrated after finding a minor error in the magnet vector. By changing 6 bytes in P3D's software, the proper vector has been achieved.

Presently, Phase 3D's attitude is being changed to prepare for the first motor burn. This maneuver is currently proceeding according to expectations and should be completed in a few days.

Both S-band transmitters have been tested (S-1 and S-2), and both have been found to work properly. With P3D's dish-antennas (for now) pointing away from Earth, signals were weak as expected.

The V-band beacon is currently transmitting PSK telemetry on 145.898 MHz. "P3D is loud," reported ANS principal satellite investigator N1JEZ, "even at apogee signals at my QTH are S-9 or better with no detectable QSB." Along with telemetry, P3D is currently transmitting the following messages:

"This is AMSAT OSCAR-40, the international satellite to support science and education, Amateur Radio space communications and above all, international friendship," and "QST, QST de AMSAT OSCAR-40 in memory of Werner Haas, DJ5KQ, vice president AMSAT-DL, 13-06-00."

For more information, visit the AMSAT-NA Web site, <<http://www.amsat.org>>.

Many people wonder how the name Phase 3-D was chosen. It indicates the type of satellite and number in the series. The earliest Phase 1 amateur radio satellites had non-rechargeable batteries and only transmitted beacons which included some form of data, typically Morse code indicating the satellite's temperature.

The Phase 2 satellites are more sophisticated satellites with solar cells and rechargeable batteries. Phase 3 indicates high altitude satellites in "Molniya" (the Russian word for "Lightning") highly elliptical orbits with the top of the orbit in the Northern hemisphere. This type of orbit has the advantage of using a single satellite to cover large areas of the globe, and a long "hang time" which makes tracking easier.

The key disadvantage of a Phase 3 satellite is it isn't always available from any given location. The letter "D" in "Phase 3-D" indicates that this is the fourth satellite in this series.

Phase 4 is for geosynchronous and near-GEO Amateur Radio satellites. There's even been casual talk about Phase 5 satellites -- amateur satellites to the moon or Mars!

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CUTTING EDGE TECHNOLOGY

Overhead video cameras move on tracks. A mobile video camera system by Telemetrics lets studio operators remotely control cameras that ride around on ceiling-mounted tracks. It allows camera views from positions where human beings could not comfortably exist. What's more, cameras can move forward or backward, pan back and forth, zoom in and focus -- all by remote control. The tracks can be straight or curved.

Electronics in cars continues to grow. It is estimated that all of the electronics inside an average new car in America accounts for about one-fifth of the total cost. Sensors, indicator lights, motors, digital displays, radios and tape/CD players, cellular phone hookups, and even LED-based brake lights are all electronic. What's next?

Is your laser wearing out? It can happen. Factories and machine shops use lasers for cutting and welding. But nothing lasts forever, and lasers can eventually fail due to loss of gas pressure inside the laser tube or from degradation of the optics. Optical and electronic components drift in value during heavy use. That's why optical beam analysis (a combination of hardware and software) lets engineers and even end users measure the operating characteristics of a laser beam. Spot sizes, beam patterns, intensity and stability can be measured and tracked. Such data lets technicians perform preventive maintenance or find problem areas faster than usual.

Can you strap six speakers to your head? You probably could on a bet, but it's much easier to just use Dolby Laboratories' Dolby Headphone technology. The new DVD audio format offers six-channel sound; and Dolby's technique creates a special mix of audio signals to let ordinary stereo headphones emulate multi-channel sound.

More research into stable quartz-based oscillators. Every ham radio operator is familiar with quartz-crystal-based oscillators. They are at the heart of practically every RF transmitter, including mobile phones. But quartz crystals are sensitive to mechanical vibrations, thus temporarily throwing off their oscillating frequency. Mobile phones are constantly exposed to vibrations and g-forces

(have you dropped your cellular phone in the car recently?), and so scientists and engineers are working on ways to make quartz-based oscillators even more stable in today's rugged world.

Why are so many semiconductor manufacturers building their own electrical systems at their factories? Because there's so much money at stake. Relying on the power grid can be risky because one "glitch" (voltage sag) can destroy anywhere from \$100,000 to over \$1 million worth of semiconductor wafers while they're being built. Some plants have their own generators, and voltage-restorers built in.

What technology do you consider important enough to devote research money to continuously, for over 25 years? If you're IBM, the important technology is in the human voice. Voice recognition and speech synthesis are among the research projects that IBM has funded longer than any other.

Automation to replace the family dog! Intelligent robot pets will be common by 2005, and electronic pets will outnumber organic pets by 2020. (*The Futurist*, Nov.-Dec. 2000 issue.)

EMERGING COMMUNICATIONS

Expect to see DVD entertainment systems on airplanes. For long flights in first class, you can select a movie from a list of DVDs, which the flight attendant will provide. Airlines favor DVD players over VHS video players because they are less bulky, less mechanical, don't require constant cleaning, and are more resistant to vandalism. In addition, the program can be paused by the pilot or flight attendant so passengers will pay attention to important messages.

DAT problems. Digital Audio Tape (DAT) technology provides high fidelity, but the purely digital signals it records onto magnetic tape can create a problem that analog tape users never had to worry about: machine incompatibility. Since the audio signals are made up of low-level bits, it doesn't take much mis-alignment in the recording/playback system to confuse the computer. Mechanical systems eventually do stray out of alignment, and one DAT tape recorded on one machine may not be accepted in another -- even among DAT machines of the same

brand. Re-aligning a digital audio tape machine is not nearly as simple as adjusting the heads on an old analog tape deck; with digital sound, you get either all of the song, or nothing at all.

HDTV progresses worldwide. The USA is not the only country gearing up for High-Definition Television. Mexico's largest stations are upgrading their studios and equipment for the new format, and is already transmitting some programs in High-Def. Brazil, Japan, Canada and Australia are planning to begin regular HDTV programming within the next two years.

Closed-captioning to be included in HDTV signals. Engineers say that standard closed-captioning information, which is included in the vertical blanking interval in standard NTSC television signals, will remain in the new HDTV format. But it will come through as much as 10 times faster.

Iceland has the most cellphones per capita! According to the EMC World Cellular Database, Iceland now has the deepest penetration of wireless subscribers in the world, even more than rival Finland. Nearly 79% of Iceland's people now carry cellphones, mostly due to cheap airtime and a concerted effort by Nokia and Ericsson to sell product there. EMC also says Iceland's residents also are in the top three worldwide when it comes to Internet usage. (*Reported by Reuters.*)

Should you even bother shopping for DSL? If you live farther than 18,500 feet (a little more than three and a half miles) from your telephone company's central office, the high-speed digital signal will degrade so much that it won't work at your location. Only about 20% of all Americans live close enough to the equipment necessary to make digital subscriber line technology accessible.

COMPUTER INFO

One inexpensive but proven method of preventing E-mail viruses from getting into a large company's computer network (and one that has already been established in a few cases) is the "No attached files accepted, period" policy. This means no graphics files, animations, documents, etc. will be permitted to enter the network's firewall. Computer viruses can't travel with pure ASCII text.

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Send and receive E-mail at sea. Cruise lines are beginning to offer E-mail services. It's expensive, because the only consistent data link on the seven seas is via satellite. But passengers can still send and receive business or personal E-mail while on vacation. Sometimes, computer classes are even offered on-board ship for people who are not computer-savvy but want to learn and take advantage of the technology.

Computer graphics more prevalent in court cases. Computer animation in legal battles, for those who can afford it, often makes the crucial difference between winning and losing. 3-D computer simulations let jurors look at scenarios from a variety of angles. Psychologists say such presentations are less likely to be forgotten and more likely to be understood by the average person. Detailed graphics can clear up civil liability cases, car accident cases, and patent disputes.

Electronic workhorses. The earliest microprocessors did just one thing at a time, but did it very fast and very well. Today's newest processors can do several things at once -- thus increasing speed and performance. Instead of taking multiple clock cycles to perform just one instruction, the latest processor architectures contain up to four buses, allowing for movements of data in and out of memory, instruction fetches, and other procedures -- all in a single instruction cycle.

Don't know what to do with those old 35mm slides? Display them on your computer, or on the wall -- just like old times. Some of the newest digital video projectors incorporate old slide trays and automatically scan them into digital files, displaying them for everyone to see and also downloading the image files into the computer for storage.

Take it easy on your eyes. If you use a computer at night, or in a dark room, eye specialists say it's better to have some ambient light on instead of only the video monitor. Working in the dark makes your pupils dilate, making your eyes work harder and you get tired faster. It's best to keep some light going in the room with you, as long as it doesn't throw any glare onto the computer screen.

If you want to study engineering in college, but refuse to use computers, don't even bother to apply. At some campuses, freshmen are required to buy a laptop computer. In the long run, fluency in computer technology makes for a better

education. Major universities are constructing wireless LANs (Local Area Networks) among their buildings and dorms, so a student looking for information in the library can send an E-mail to the professor from the laptop. Professors and teaching assistants can be reached anywhere, at any time, eliminating the need for a mad rush to someone's office (usually on the other side of the campus!). This also frees up crowded computer labs.

E-mail etiquette. Judges have already started holding people in contempt when they fail to shut off their pagers and cellular telephones in courtrooms. Now some office managers have started handing out fines to workers who check their e-mail during company meetings!

How many megabytes of information is on your business card? Take another look at the latest business cards in your wallet or purse -- they could be placed in your CD-ROM tray on your computer. Open their files to read hot links to the Internet, trade show data, catalogs and portfolios. Such CD-ROM business cards don't even have to be round, as most discs are; they don't contain nearly as much information, so they can be made smaller. As much as 50 MB of data can be included on a CD-ROM business card.

USB hubs being built into video monitors. The Universal Serial Bus, the new method of linking computer peripherals together, requires the plugging-in of cables from one device to another. Each device requires some amount of power, and it's easier to distribute that power from "hubs." These hubs are often built into computer keyboards, but the newest desktop video monitors are starting to offer USB hubs built-in.

INTERNET NEWS

According to a research report from the Gartner Group, all 50 US states should offer some form of Internet voting by the time the presidential election in 2004 rolls around. A big issue still to be solved is voter security and verification.

While the Internet may have crept into just about every aspect of the 2000 political campaigns -- from fund-raising to get-out-the-vote drives -- the trend toward e-voting may be as much a result of obsolescence as of technological innovation, the study indicates.

Gartner said that in 1996, 35 percent

of states and counties were still using old fashioned voting machines that employ a "spin-wheel" tabulator technology invented in the 1890s. Four years later, that number had dropped to 20 percent. Many states and localities have shifted back to a paper-based system, while others have turned to regular "punch card" systems.

Who invented the Internet? Well, it wasn't Al Gore... even though he takes credit. On December 16, 1997, Pres. Clinton presented the U.S. National Medal of Technology to Vinton G. Cerf and his partner, Robert E. Kahn, for their founding and developing the Internet.

In 1974, Cerf and Kahn (both Ph.D's) co-published "A Protocol for Packet Network Interconnection." Their TCP/IP communications protocol is the computer language that gave birth to the Internet.

The Internet grew out of an experiment begun in the 1960's by the U.S. Department of Defense. The DoD wanted to create a computer network that would continue to function in the event of a disaster, such as a nuclear war. If part of the network were damaged or destroyed, the rest of the system still had to work. That network was ARPAnet, which linked U.S. scientific and academic researchers.

The World Wide Web (which is a media application of the Internet) was developed in 1989 by English computer scientist Timothy Berners-Lee to enable information to be shared among international teams of researchers at the European Laboratory for Particle Physics (formerly known by the acronym CERN) near Geneva, Switzerland. It was further developed by the WWW Consortium based at the Massachusetts Institute of Technology in Cambridge, Massachusetts.

The first web browser, called "Mosaic" was developed by Marc Andreessen, a young undergraduate at the University of Illinois. Andreessen was interested in combining the existing Internet framework with the multimedia applications made available by hypertext and the World Wide Web.

It is hard to believe that the Internet as we know it, has only been around less than ten years.

Internet creates office space. With more people doing their work from home via the Internet, more office space is becoming available. Studies show that within seven years, commercial building use could be freed up by as much as 5%. This

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includes retail, commercial, and warehouse space.

The "Dot.com" bubble has burst!
The average Internet mutual fund is down 50% year-to-date. After a banner year for Internet funds that were open all of 1999, nearly 40 new funds jumped on the Internet sector bandwagon and started business this year. They all have huge losses! Here is a sample:

Symbol - Fund	1999	2000
MNNAX Munder NetNet	+175%	-45%
WWWFX Kinetics Internet	+216%	-46%
WWIFX WWW Internet	+167%	-49%
TEFQX Firsthand e-Comm	*	-52%
SNETX Strong Internet	*	-52%
ATAHX Amerindo Tech	+251%	-55%
INGAX ING Internet	*	-61%
MFBIX Monument Internet	*	-65%
JAMFX Jacob Internet	*	-79%

[* = New Fund - Not available in 1999]

More Internet meltdown! In our last issue we mentioned how poorly postage stamps over the Internet were doing. Online postage stamp vendor E-Stamps Corp. (Palo Alto, CA) was the first company to receive USPS approval for their Internet postage technology and the first to offer it commercially. They are also the first company to go out of the web-based postage business. Investors (Nasdaq: ESTM) lost a fortune on the venture ...down a whopping 99% from their 52 week high. Ouch! (See: <<http://www.e-stamp.com>>)

And Pets.com, a leading online provider of pet products, shuttered its operation as of November 7th. Pioneer e-commerce retail site, Value America, Inc. (www.VA.com), of Charlottesville, Virginia, has also closed down and filed for bankruptcy. Both were publicly owned companies (Nasdaq: IPET and VUSA.)

WASHINGTON WHISPERS

The FCC has received a letter from the Global Maritime Distress and Safety System Task Force proposing a revised GMDSS Question Pool for FCC license exams.

The GMDSS Operator and Maintainer are commercial radio operator licenses which are replacing commercial radiotelegraph licenses at sea. This is the same Question Pool which was approved

by the Coast Guard on June 15, 2000.

The FCC plans to put the proposed Question Pool out for public comment in the near future, probably with a 30 day comment period, and will accept input from the COLEMs (Contractors approved to administer FCC exams) at a planned meeting in December.

On October 31st, the FCC fined Carolina Liquidators, Inc. (a furniture store in Irving, TX) \$230,000 for sending unsolicited advertisements to telephone facsimile machines in violation of the *Telephone Consumer Protection Act* (TCPA). The Commission determined that Carolina Liquidators sent 34 "junk fax" advertisements promoting a furniture auction to consumers after being warned that its previous fax advertisements violated federal law and that additional junk fax advertisements could result in "monetary forfeitures."

Businesses and individuals that receive unsolicited fax ads should report the problem to: FCC Common Carrier Bureau, Consumer Complaints, Mail Stop 1600 A2, Washington, DC 20554

Starting next month, the federal government will be testing satellite-based monitoring equipment to keep tabs on people accused of federal crimes in Dallas, Los Angeles and New York. The U.S. Pretrial Services, the court office that keeps track of federal offenders, will be among the first federal offices in the country to use the Global Positioning System-based monitoring system.

Housing an inmate awaiting trial costs about \$60 a day, while the GPS system costs about \$11 a day. The space-based system from Pro Tech Monitoring of Florida will replace less-reliable systems such as electronic ankle monitoring devices.

The GPS receiver includes a wireless modem, a motion-detection device that can determine speed and two-way pagers that communicate with computers operated by officers of the court. Housed inside a lightweight box worn over the shoulder, the system is pre-programmed to know where the defendant can and can't go ...and the time he has to be there.

A wearer can be electronically banned from going too near a specific country, state, county, neighborhood, street or home. Crossing over the wrong electronic boundary sets off alarms at a victim's home and at the probation office. A video screen alerts the feds where the suspect is and where he is going.

AMATEUR RADIO

Joseph Speroni AH0A of Lawai, Hawaii filed a Petition for Rulemaking with the FCC on November 13th. He requests additional frequency privileges for amateurs passing Element 1 (the 5 words-per-minute CW exam.) He argues that "...this would result in the deletion of the current exclusive operating conditions in the Novice subbands, allowing more Amateurs increased opportunity to practice their code skill."

Specifically he asks that any Amateur who passes 5 wpm code be allowed to operate at full power in the HF 80m, 40m, 15m and 10m CW bands authorized to General Class licensees. Operation by Novices and Technicians in the current Novice bands would still be restricted to 200 watts, however.

Speroni adds that "...discontinuing the Novice Class license has had the unintended effect of giving new Amateurs less opportunity to practice and develop their Morse code skills."

His proposal would change the bands authorized to:

Band	Current-MHz	Proposed
80m	3.675-3.725	3.525-3.750
40m	7.100-7.150*	7.025-7.150*
15m	21.100-21.200	21.025-21.200
10m	28.100-28.500	28.000-28.500

[* = 7.075 MHz in ITU Regions 1 and 3.]

He acknowledges that the ARRL suggested "refarming" the Novice bands but there was little consensus on the subject. "A formal review process has not begun and may require lengthy debate." Speroni believes "The suggested changes are thought not to be controversial." Receipt acknowledged by FCC on November 17.

The ARRL is reporting that, according to AMSAT-NA Pres. Robin Haighton, VE3FRH, the new OSCAR 40 (previously known as the Phase 3D hamsat) could be "...available for a limited period of general amateur use "possibly within a week or two." Phase 3D remains for now in a geostationary transfer orbit while initial housekeeping and check-out procedures are under way.

"Just when and how the 'limited operation' will occur is up to the ground controllers, Haighton said. "The most likely configurations for the limited test period would be 70 cm (435.300-800) up and

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2 meters (145.805-.990) down and 1.269 GHz up and 2.4 GHz down, SSB and CW."

Phase 3D will not be opened for full amateur use until it's been placed in its final orbital configuration. (An elliptical orbit that dips to within 2,500 miles of earth every 16 hours.) That's expected to take about nine months.

ICOM has just announced a brand new VHF/UHF satellite (CW/SSB/FM) transceiver. The IC-910H has an output power level of 100 watts on VHF, 75 watts on UHF and supports the key P3-D transponder frequency bandplan: "Mode B" (70 cm uplink, 2m downlink), "Mode JA/analog and JD/digital" (2m uplink/ 70cm downlink) and "Mode S" (70 cm uplink, 2.4 GHz downlink.) Retail price "to be announced." Specs found at: <<http://www.icomamerica.com/>>. (Click on "New radios," at page bottom.) It is not yet available, but will be shortly.

The International Space Station (ISS) crew has completed installation of the on board ham station.

Initial engineering tests conducted with the Gagarin Cosmonaut Training Center R3K (Star City near Moscow), NN1SS at the Goddard Space Flight Center (Greenbelt, MD) and W5RRR, the Johnson Space Center ARC (Houston, TX) were very successful.

Astronaut Commander William "Shep" Shepherd, KD5GSL and Cosmonaut Sergei Krikalev U5MIR reported to Goddard that the quality of the VHF circuit "was excellent" and that the "Signal-to-noise and readability of the ham radio is better than our other comm circuits."

"Shep" also made the first casual Amateur Radio contacts to a few lucky hams from the ISS Alpha on Friday, November 17. Check out the ARISS Web site at <<http://ariss.gsfc.nasa.gov/>>. (Thanks KC6ROL, ARRL, AMSAT)

We were recently asked exactly **when and where the 2003 World Radio Conference would be held** that would be considering new Amateur Radio Service operator qualifications.

On July 26th, the ITU (WRC-2000 Istanbul) scheduled the 2003 session (WRC-03) for a period of four weeks in Geneva, (Switzerland) from 9 June to 4 July 2003 with the following Amateur Service agenda item:

- **Item 1.7.1:** possible revision of Article S25.

This is the international Radio Regulation that requires manual Morse code proficiency to operate on the HF ham bands.

There are also two insignificant agenda items that impact the Amateur Service. One involves Article S19 ("concerning the formation of call signs in the amateur services in order to provide flexibility for administrations") and a "review of the terms and definitions of Article S1 to the extent required as a consequence of changes made in Article S25"

The battle between German pro-coders and the no-coders is heating up!

Some amateurs (mostly belonging to the no-code pro-modernization AGZ faction -- See: <<http://www.agz.net>>) were distributing packet radio bulletins criticizing Deutscher Amateur Radio Club politics and their conservative views on Morse code. The DARC is the German national ham club.

In response, on November 24th, most packet radio mailboxes in Germany were switched off by sysops who support the DARC. Neither user-to-user mail nor bulletins are now possible across the German packet radio network.

The RegTP (Germany's telecom regulator) was informed about this censorship by the barred amateurs. It has now proposed a regulation that says that any suspending of amateurs from digital amateur radio networks is illegal, as long as the bulletin contents are legal.

The sysops responded by saying that the PR network is strictly private, they can do whatever they want (like excluding call signs), and that they will not accept the RegTP anti-censorship regulation. And to emphasize their protest, they switched off most of the network!

It still unclear how long this protest will last (sysops' page: <<http://www.paxon.de>>). Also the DARC website is reporting on this dissent. See: <<http://www.darc.de/>>. (All webpages are in the German language.)

FCC Enforcement News - **Joseph L. Fox KD4MS**, trustee of the **Panama City (Florida) Amateur Radio Club station W4RYZ**, has been asked to explain their operation on 29.600 MHz. This station "...is automatically identifying every nine minutes and causing interference to other Amateur communications....." This frequency is used by the Amateur community for repeater and as an FM simplex calling frequency. He was given 30 days to respond to the FCC.

The **Union Pacific Railroad** has been warned that it has been monitored in simplex mode using the frequency 147.555 MHz in the Roseville, Calif. area. "Continued operation without a license will result in a monetary forfeiture," FCC said.

The FCC has warned **Jeffrey J. Pipenur of Vandalia, Ohio** that it intends to revoke his WA8IKW station license and suspend his General Class operator privileges if his deliberate interference to ongoing communications continues. Pipenur had previously been granted a short term (one year) renewal of his license due to similar problems.

Brian P. Letendre KE6IRJ (Big Bear City, Calif.) and Jacob T. Johnson KC0FPN (Essex, Iowa) have both been cited for apparently altering their CSCEs (*Certificates of Successful Completion of Examination*) to fraudulently reflect a date that is within 365 days of a passed examination. Both appeared at a Prescott, Arizona ARRL-VEC test session on April 16, 2000 and presented the modified CSCEs to the VE team. CSCE exam credit can only be conferred for one year. The FCC has asked to respond to the accusation within 20 days.

The attorney of **Joseph Keller, W8WW of Lake Worth, Florida** has been notified by the FCC that they have not yet received a response to their previous request for information concerning the operation of W8WW. An additional complaint about Mr. Keller's operation has also been received. The FCC wants a response within 20 days.

Michael E. Guernsey ND8V (Kalamazoo, MI) has agreed to have his operator license modified to preclude HF operation below 30 MHz for a period of nine months (from Jan. 1 to Sept. 2, 2001.) Guernsey had previously been monitored deliberately interfering with the ongoing communications of Hispanic operators and truckers and the Maritime Mobile Service Net on 20 meters. "Should there be any violation of this agreement, we will proceed toward revocation and suspension hearings," FCC said.

Jorge L. Bermudez KP4IQ, (Deltona, Florida) has been warned by the FCC that it has monitoring information indicating that he has engaged in deliberate interference to communications in progress on the 20 and 40 meter band as recently as Nov. 3rd. He has been ordered to respond to the allegations within 20 days "...and state what actions you are taking to prevent this type of interference."

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AMATEUR RADIO STATION CALL SIGNS

...sequentially issued as of the first of December 2000:

Radio District	Group A Extra	Group B Advanced	Group C Tech/Gen.	Group D Novice
0 (*)	AB0PD	KI0RX	(***)	KC0JGB
1 (*)	AA1XJ	KE1LY	(***)	KB1FXW
2 (*)	AB2RE	KG2RM	(***)	KC2HER
3 (*)	AA3WD	KF3DZ	(***)	KB3FUP
4 (*)	AG4EB	KV4FI	(***)	KG4KQK
5 (*)	AD5BE	KM5XF	(***)	KD5MKV
6 (*)	AD6TY	KR6ER	(***)	KG6EFZ
7 (*)	AC7KG	KK7WR	(***)	KD7LAA
8 (*)	AB8JF	KI8JX	(***)	KC8PVZ
9 (*)	AB9AU	KG9RA	(***)	KB9YKO
N. Mariana	NH0Z	AH0BB	KH0LO	WH0ABP
Guam	(**)	AH2DN	KH2VC	WH2ANX
Hawaii	(**)	AH6QR	(***)	WH6DGM
Am. Samoa	AH8T	AH8AI	KH8DO	WH8ABF
Alaska	(**)	AL7RR	KL1AC	WL7CVE
Virgin Isl.	(**)	KP2CP	NP2LG	WP2AIN
Puerto Rico	WP3K	KP3BL	WP3IQ	WP4NOT

* = All 1-by-2 & 2-by-1 call signs have been assigned.

** = All 2-by-1 call signs have been assigned.

*** = All Group "C" (N-by-3) call signs have run out and Group "D" (2-by-3) call signs are being assigned.

Note: New prefix numerals now being assigned in Puerto Rico (KP3/NP3), Hawaii (AH7/KH7) & Alaska (AL0/KL0, 1)

[Source: FCC Amateur Service Database, Washington, DC]

LICENSE EXAM FEES GOING UP AS OF JAN. 1, 2001

Up until recently, the cost to take a Amateur Radio license examination was tied to the cost of living (CPI - the Consumer Price Index.) The provision for license exam fees started in 1984 when Barry Goldwater K7UGA introduced the measure into Congress. He suggested a beginning fee of \$4.00 with annual adjustments based on inflation. The current maximum is \$6.67 which is rounded down to the nearest 5¢ by most VECs.

A few years ago, the American Radio Relay League suggested to the FCC that this fee was inadequate due to high costs. The FCC has now said that after reviewing recent legislation, it appears that VECs will now be able to set their own fees.

ARRL VEC Manager Bart Jahnke, W9JJ, says the ARRL VEC plans to set its test fee for calendar year 2001 at \$10. An FCC announcement of changes in its rules, reflecting the change in the law, is expected toward the end of the year.

"The higher fee reflects the fact that the ARRL VEC is doing more of the work on behalf of the FCC than was envisioned at the time Congress set the original cap," said ARRL Executive Vice President David Sumner, K1ZZ.

"We're doing the data entry for all new and upgrade license applications that are handled by the ARRL Volunteer Examiners. Originally, we simply reviewed and orga-

nized the paperwork and the FCC staff did the data entry. The current system is better for the applicants because they get their licenses faster, but it's also more costly for us." It is anticipated that the W5YI-VEC will also adopt the \$10.00 examination fee.

NEW INTERNET ADDRESS SUFFIXES COMING

Formed in October 1998, the *Internet Corporation for Assigned Names and Numbers* (ICANN) is a non-profit private sector initiative that oversees the Domain Name System (DNS). (See end note.) Their 18 Directors represent a broad cross-section of the global Internet's business, technical, academic, and user communities.

ICANN -- which replaced the Internet Assigned Numbers Authority (IANA) -- is recognized by the United States as the global coordinator of the Internet's domain name system. They were designated by the Commerce Department in 1998 as the overseer of online addresses. Their latest round of meetings (which were also web-casted on the Internet) was held November 13-16, 2000 at the Marriott hotel in Marina del Rey, California.

To relieve the dot.com name congestion, the ICANN Board approved seven new alternative online suffixes which will start showing up on your browser next summer. It is the first Internet addressing expansion since the 80s. The new suffixes are similar to adding area codes to the national phone system to accommodate growth.

Domain name addresses are important since they tell computers how to locate a Web server known in computerese by a series of four numerals, each ranging from 0 to 255. Users can remember a domain name much easier than a string like "143.136.100.34."

The new top level domain (TLD) suffixes

The Web address generic suffix categories approved Thursday, November 16th are:

- | | | |
|-----|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (1) | .aero | for airlines, airports, computer reservation systems and related aviation industries. |
| (2) | .biz | specifically for businesses. |
| (3) | .coop | for business cooperatives such as credit unions and rural electric coops. |
| (4) | .info | for general information. |
| (5) | .museum | for accredited museums worldwide. |
| (6) | .name | for individuals. It would reserve second-level names such as smith.name and let individuals register john.smith.name or betty.smith.name. It is not clear how the company would deal with multiple individuals named John Smith. |
| (7) | .pro | for professionals such as doctors and lawyers who would have to prove their professional status. (For example: johndoe.med.pro or johndoe.law.pro.) |

The seven winning suffixes were chosen from among 47 applications that were received by the Oct. 2.

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deadline. A team of technical, financial and legal advisers determined that 14 plans deserved consideration.

The additions are the first major TLDs to the Internet since the domain name system was developed in the 1980s. The groups that suggested them had to pay a non-refundable \$50,000 fee for the chance to become record keepers for the new names.

As registry operators, they will be able to charge a few dollars for each name registered, an amount that could add up to millions of dollars for the most popular suffixes. Each new TLD will have to keep full records of the contact information (publicly available "whois" data) of domain-name registrants.

Among generic domain names that did not make the cut were ".kids" (approved children's sites), ".xxx" (porno sites), ".health" (prescreened medical information), ".tel" (phone numbers), ".geo" (sites tied to latitude and longitude coordinates) and ".yp" (for yellow page directories.)

The board strongly considered ".web" but changed it to ".info" since another unauthorized company was already registering ".web" suffixes. ICANN also rejected ".lil" for individuals, instead choosing ".name".

It is anticipated that even more generic domain names will be approved shortly, although ICANN did not say exactly when. "We haven't discussed anything," said Vinton Cerf, who was elected chairman of ICANN after the meeting. "This is unexplored territory."

The November 16th decision by ICANN completed more than five years of discussion on how to relieve demand for addresses ending in "dot com". With some 20 million "dot com" names registered worldwide, easy-to-remember addresses have basically all been used up. It is anticipated that the ".biz" and ".info" domains will be used by millions of businesses that ordinarily would have used the "dot com" suffix.

ICANN must now negotiate contracts with companies or groups that made the winning proposals. That should occur by year's end, and getting the databases running could take a few more months.

Economic Solutions, a St. Louis-based company, owns the rights to Belize's domain, .bz. The company recently asked a federal court to grant an injunction that would prohibit ICAN from issuing .biz, arguing that the similarity of the two names infringes upon Economic Solutions' intellectual property rights.

Internet land rush about to begin!

While additional high level domains were welcomed, the fact remains it could pose a problem for many large websites. Exploitation of the new high-level domains will cause many Internet enterprises to have to register additional name variants at an initial cost of \$5 to \$100 each. Total cost could run into thousands of dollars.

The cyper-squatters - Internet name speculators - are already poised to register popular site names in hopes

of selling them back to the "dot com" owners at a profit.

Most large trademark holders are planning to register multiple names for defensive purposes such as to protect their company names, product names and trademarks. Even misspelled prefixes and related sentences (e.g., "ihateXXX") will be registered to take them out of circulation.

Crash Course on the Internet Domain Name System (DNS)

Domain names are the familiar, easy to remember addresses for computers on the Internet (such as w5yi.org). They correspond to a series of numbers (called Internet Protocol numbers) that serve as routing addresses on the Internet. Domain names are used generally as a convenient way of locating information and reaching others on the Internet.

The Internet domain name system (DNS) consists of a directory of all the domain names and their corresponding computers registered to particular companies and persons using the Internet. When you register a domain name, it will be associated with the computer on the Internet you designate during the period the registration is in effect.

A small set of gTLDs (generic Top-Level Domains) denote intended function. Domain names ending with .com (commercial), .net (network) or .org (non-profit) can be registered by the public through many different companies (known as "registrars") that compete with one another. (.edu is reserved for accredited educational institutions, .gov for the US government and .mil for the US military.)

To register a domain name, you are asked to provide the registrar you select with the various contact and technical information that makes up the registration. The registrar will then keep records of the contact information and submit the technical information to a central directory known as the "Registry." This registry provides other computers on the Internet the information necessary to send you e-mail or to find your web site. Most registrars offer web-based registration services.

Information about who is responsible for domain names is publicly available to allow rapid resolution of technical problems and to permit enforcement of consumer protection, trademark, and other laws. The registrar will make this information available to the public on a "Whois" site. You can find out who the registrar is by going to: <<http://rs.internic.net/whois.html>>. Each registrar sets the price it charges for registering names and the registration period with a maximum limit of ten years. Each registrar participates in the *Shared Registration System* which is a common address database.

Only registrars accredited by the *Internet Corporation for Assigned Names and Numbers* (ICANN) are authorized to register .com, .net and .org names in the registry. ICANN is a relatively new non-profit corporation that assumed responsibility from the U.S. Government for coordinating certain Internet technical functions, including the management of the Internet domain name system. More information about ICANN can be found at <<http://www.icann.org>>.

Some two hundred two letter domains, such as .uk, .de and .jp (for example), are called country code top-level domains (ccTLDs) and correspond to a country, territory, or other geographic location. The rules and policies for registering domain names in the ccTLDs vary significantly and some are reserved for use by citizens of the corresponding country.